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IN THE CLAIMS:

1. (Currently Amended) A method for use in noninvasively monitoring a physiological parameter of a patient, comprising the steps of:

obtaining a photoplethysmographic ("pleth") signal that is modulated based on interaction of a transmitted optical signal with blood of said patient, wherein said pleth signal includes at least a first respiratory component and a second Mayer wave component associated with the patient's autonomic nervous system;

processing said pleth signal relative to said first and second components to distinguish effects associated with said first respiratory component from effects associated with said second Mayer wave component; and

monitoring a respiration rate of said patient's breathing ~~said physiological parameter~~ using at least one said distinguished effect.

2. (Original) A method as set forth in Claim 1, wherein said first component relates to the patient's respiratory sinus arrhythmia.

3. Cancelled.

4. (Original) A method as set forth in Claim 1, wherein said step of obtaining comprises the substeps of:

providing at least one source for transmitting an optical signal;

operating said at least one source to transmit said optical signal relative to said patient such that said signal interacts with said blood of said patient;

providing a detector system and generating said detector system to detect said transmitted optical signal and provide said pleth signal reflective of said detected optical signal; and

providing a processor and operating said processor to obtain said pleth signal.

5. (Original) A method as set forth in Claim 4, wherein said substep of providing at least one source comprises providing two sources having different spectral contents.

6. Cancelled.

7. (Original) A method as set forth in Claim 6, wherein said substep of distinguishing comprises using said pleth signal to monitor information related to both blood pressure and heart rate.

8. (Previously Amended) A method as set forth in Claim 7, wherein said monitoring information related to blood pressure step comprises acquiring at least a portion of the pleth signal, filtering at least one component from the acquired signal portion, and determining information regarding a variation in blood volume over time related to the first and second components.

9. (Previously Amended) A method as set forth in Claim 7, wherein said monitoring information related to heart rate step comprises acquiring at least a pulsatile portion of the pleth signal and determining information regarding a variation in heart rate over time related to the first and second components.

10. (Currently Amended) A method as set forth in Claim ~~6~~ 1, wherein said substep of distinguishing comprises determining first information related to a first signal defined by variations in blood pressure over time, determining second information related to a second signal defined by variations in heart rate over time, and using said first information and said second information to obtain third information related to a phase difference between said first signal and said second signal.

11. (Original) A method as set forth in Claim 10, wherein said substep of distinguishing further comprises using said identified phase difference to analyze said pleth signal so as to obtain information related to said first component.

12. (Currently Amended) A method as set forth in Claim ~~6~~ 1, wherein said substep of distinguishing comprises determining first information related to a first signal defined by variations in blood pressure over time, determining second information related to a second signal defined by variations in heart rate over time, and using said first information and said second information to

obtain third information related to a difference in waveform between said first signal and said second signal.

13. Cancelled.

14. (Previously Amended) A method for use in monitoring a patient's breathing comprising the steps of:

transmitting an optical signal relative to said patient such that said signal interacts with blood of said patient;

operating a detector system to detect said transmitted optical signal and provide a photoplethysmographic ("pleth") signal reflective of said detected optical signal, where said pleth signal includes at least a first respiratory component and a second Mayer wave component associated with the patient's autonomic nervous system;

first processing said pleth signal to isolate a pulsatile pleth signal and a baseline pleth signal;

second processing said baseline pleth signal to distinguish effects associated with the said first respiratory component from effects associated with said second Mayer wave component; and

using said distinguished effects to monitor said patient's breathing.

15. (Original) A method as set forth in Claim 14, wherein said first component relates to the patient's respiratory sinus arrhythmia.

16. Cancelled.

17. (Original) A method as set forth in Claim 14, wherein said step of transmitting comprises operating one or more sources to provide a first channel of said signal having a first spectral content and a second channel of said optical signal having a second spectral content different from said first spectral content.

18. (Previously Amended) A method as set forth in Claim 14, wherein said step of distinguishing comprises using said baseline signal to monitor information related to one of blood pressure and heart rate.

19. (Previously Amended) A method as set forth in Claim 18, wherein said monitoring information related to blood pressure step comprises acquiring at least a portion of the baseline signal, filtering at least one component from the acquired signal portion and determining information regarding a variation in blood volume over time related to the first and second components.

20. (Previously Amended) A method as set forth in Claim 18, wherein said monitoring information related to heart rate step further comprises acquiring at least a pulsatile portion of the pleth signal and determining information regarding a variation in heart rate over time related to the first and second components.

21. (Original) A method as set forth in Claim 14, wherein said step of distinguishing comprises determining first information related to a first signal defined by variations in blood pressure over time, determining second information related to a second signal defined by variations in heart rate over time, and using said first information and said second information to obtain third information related to a phase difference between said first signal and said second signal.

22. (Original) A method as set forth in Claim 21, wherein said step of distinguishing further comprises using said identified phase difference to analyze said pleth signal so as to obtain information related to said first component.

23. (Original) A method as set forth in Claim 14, wherein said substep of distinguishing comprises determining first information related to a first signal defined by variations in blood pressure over time, determining second information related to a second signal defined by variations in heart rate over time, and using said first information and said second information to obtain third information related to a difference in waveform between said first signal and said second signal.

24. (Original) A method as set forth in Claim 14, wherein said substep of monitoring comprises measuring said patient's respiration rate.

25. (Currently Amended) An apparatus for use in monitoring a patient's breathing, comprising:

a port for receiving a photoplethysmographic ("pleth") signal that is modulated based on interaction of a transmitted optical signal with blood of said patient, wherein said pleth signal includes at least a first component associated with the operation of the patient's respiratory system and a second component associated with the patient's autonomic nervous system; and

a processor operated for processing the pleth signal to distinguish an effect associated with one of said first and second components from an effect associated with the other of said components, wherein said processor is operative for distinguishing said effect by determining first information related to a first signal defined by variations in blood pressure over time, determining second information related to a second signal defined by variations in heart rate over time, and using said first information and said second information to obtain third information related to a waveform difference between said first signal and said second signal and for using said distinguished effect to monitor said physiological parameter.

26. (Original) An apparatus as set forth in Claim 25, further comprising at least one source for transmitting an optical signal relative to said patient such that said signal interacts with said blood of said patient; and

a detector system for detecting said transmittal optical signal and providing said pleth signal such that said pleth signal is reflective of said detective optical signal.

27. (Original) An apparatus as set forth in Claim 26, wherein said detector system comprises a sensor for receiving the transmitted optical signal and providing a sensor output reflective of said received optical signal and circuitry for processing said sensor output signal to provide said pleth signal.

28. (Previously Amended) An apparatus as set forth in Claim 26, wherein said at least one source is operative to provide a first channel of said optical signal having a first spectral content and a second channel of said optical signal having a second spectral content different from said first spectral content.

29. (Original) An apparatus as set forth in Claim 25, wherein the processor is operative for distinguishing an effect associated with said first component and using said effect to monitor said patient's breathing.

30. Cancelled.

31. (Previously Amended) An apparatus as set forth in Claim 25, wherein said blood pressure is monitored by acquiring at least a portion of the pleth signal, filtering at least one component from the acquired signal portion, and determining information regarding a variation in blood volume over time related to the first and second components.

32. (Previously Amended) An apparatus as set forth in Claim 25, wherein said heart rate is monitored by acquiring at least a pulsatile pleth signal and determining information regarding a variation in heart rate over time related to the first and second.

33. (Currently Amended) An apparatus as set forth in Claim 25, wherein said processor is operative to determine a phase difference between a waveform associated with said first signal and a waveform associated with said second signal.

34. (Currently Amended) An apparatus as set forth in Claim ~~33~~ 25, wherein said processor is operative for using said identified phase difference to analyze said pleth signal so as to obtain information related to said first component.

35. Cancelled.

36. (Original) An apparatus as set forth in Claim 25, wherein said processor is operative for measuring said patient's respiration rate and providing an output indicative thereof.

37. (Previously Presented) A method for use in noninvasively monitoring a physiological parameter of a patient, comprising the steps of:

obtaining a photoplethysmographic ("pleth") signal that is modulated based on interaction of a transmitted optical signal with blood of said patient, wherein said pleth signal includes at least a first component associated with the operation of the patient's respiratory system and a second component associated with the patient's autonomic nervous system;

processing said pleth signal relative to said first and second components;

distinguishing an effect associated with one of said first and second components from an effect associated with the other of said components, wherein said distinguishing comprises determining first information related to a first signal defined by variations in blood pressure over time, determining second information related to a second signal defined by variations in heart rate over time, and using said first information and said second information to obtain third information related to a waveform difference between said first signal and said second signal; and

using said distinguished effect to monitor said physiological parameter.

38. (Previously Presented) A method as set forth in Claim 37, wherein said first component relates to the patient's respiratory sinus arrhythmia.

39. (Previously Presented) A method as set forth in Claim 37, wherein said second component relates to a Mayer Wave of said patient.

40. (Currently Amended) A method as set forth in Claim 37, wherein said waveform difference between said first signal and said second signal comprises a phase difference.

41. (Previously Presented) A method as set forth in Claim 40, wherein said step of distinguishing further comprises using said identified phase difference to analyze said pleth signal so as to obtain information related to said first component.

42. Canceled.

43. (Previously Presented) A method as set forth in Claim 37, wherein said step of distinguishing comprises distinguishing an effect associated with said first component and said step of using comprises the step of monitoring said patient's breathing.

44. (Previously Presented) A method as set forth in Claim 37, wherein monitoring said heart rate comprises by acquiring at least a pulsatile portion of the pleth signal and determining information regarding a variation in heart rate over time related to the first and second components.

45. (Previously Presented) A method as set forth in Claim 37, wherein monitoring said heart rate comprises by acquiring at least a baseline portion of the pleth signal and determining information regarding a variation in heart rate over time related to the first and second components.

46. (Previously Presented) A method as set forth in Claim 37, wherein monitoring comprises measuring said patient's respiration rate.